United States Department of the Interior

FISH AND WILDLIFE SERVICE

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To: John Stein, Ph.D.
Salmon Science Coordinator
Northwest Fisheries Science Center

From: Howard Schaller, Ph.D.
Project Leader

Re: Comments on NMFS white paper entitled "Passage of Juvenile and Adult Salmonids at Columbia and Snake River Dams"

The Columbia River Fisheries Program Office of the U.S. Fish and Wildlife Service has reviewed the NOAA Fisheries (NOAAF) Draft Technical Memorandum of December 21, 2003 titled 'Passage of Juvenile and Adult Salmonids at Columbia and Snake River Dams'. We have provided the following technical comments to assist you in finalizing these papers. While the task of summarizing the vast body of research on juvenile and adult passage is large, the summary presented in "Passage of Juvenile and Adult Salmonids at Columbia and Snake River Dams" is lacking in several respects: content within each of the subsections is not organized in a clear and consistent fashion, there is little attempt to judge the quality of the research studies that have been conducted or the strength of their conclusions; results from small or poorly-designed studies are given equal weight with large, well-designed studies. A qualitative assessment of the validity and strength of conclusions for each study would be very helpful, there is little synthesis of the results from past research and what they mean for current and future management decisions and research. Preliminary data are too often reported and personal communications are too often used as references. Analyses and recommendations by fishery co-managers have not been incorporated into the document. Critical uncertainties of passage related issues in the context of overall salmon survival and productivity have not been identified, which would greatly aid in directing future research. Several sections need to be updated, as they discuss "future" research that is to take place in 2001.

Based on these general shortcomings, a major rewrite of this document appears necessary. Using a clear and consistent approach to introduce the topic, review the research, synthesize the results, and make conclusions for each section would be a great improvement. With any review, there needs to be some synthesis conducted and conclusions drawn; otherwise it is merely a

bibliography. In its current form, this document more closely resembles a bibliography than a review. What is needed for management and recovery decisions is a synthesis of the historical information with conclusions drawn and an identification of the critical uncertainties that remain, which need to be addressed with future research. For this document to be informative and effective, it must distill the vast body of historic research into what is known and what remains unknown.

Lastly, the document provides little context for how passage related impacts for juvenile and adult salmon impact overall life-cycle survival. The passage impact information needs to be integrated into an overall analytical framework to assess the impacts of direct and indirect affects of passage and hydrosystem operations on achieving salmon survival and productivity needed for recovery.

The staff of the Columbia River Fisheries Program office will be willing to assist NOAAF scientists with data and analysis need to finalize these documents. If you have any questions you can contact me or Steve Haeseker by phone or email: Howard_Schaller@r1.fws.gov . See the specific comments below.

Specific points are listed below:

p.all- throughout the document- There needs to be a discussion of the differences between tagging methods, their strengths and their limitations. Are PIT tags providing the same estimates as radio tags? What are the limitations of balloon-tags and when are they appropriate? Which tagging methods lead to robust conclusions and which are largely uninformative? This needs to be discussed at the onset before conclusions can be drawn based on the many varying tagging studies that have been conducted.

p. 8- The switch in definitions for spill effectiveness and spill efficiency is confusing. Clarify by reporting the historic results by using the current definitions or vice versa.

p. 9- Change “optimal level of spill” to “threshold level of spill”. Optimality depends on the performance measure being optimized.

p. 9– Clarify what is meant by the statement “fish in the river after August 31 receive no benefit from the spill program.” Fish that are still in the river after August 31 have accrued benefits of spill up to that date, but do not accrue benefits after that date.

p. throughout document- Many personal communications are used as references for results. If there is a document that describes a result, cite it. Do not use personal communications, which are the subjective opinions of individuals, to report results.

p. 77-78- It is unclear what purpose is served by the discussion of these surface flow bypass premises. Have these premises been found to be true? They seem to represent a potpourri of hypotheses, recommendations, and opinions. Delete and summarize the conclusions of actual

research rather than of opinions and establish testable hypotheses for the uncertainties that remain.

p. 81- "Tests in 2000 will include expanding the collector." That was four years ago, not a future test. What were the results? The whole paragraph needs to be updated.

p. 86- Again, references to "future" tests that will take place in 2001 at LWG and TDA.

p. 87- The surface bypass discussion is too short and inadequate. Where is the synthesis of, and conclusions on, surface bypass? Where is the identification of remaining uncertainties? What has been learned based on the past research?

p. 88- The data at Ice Harbor need to be described as preliminary, as there is no report. Also, the fishery managers have identified several problems with the methods that have been used at Ice Harbor and these issues should be used to caveat the estimates. These issues have been found important enough to warrant a new methodology for studies at Ice Harbor in 2004.

p. 91-92- Balloon tags have severe limitations for making inferences on survival rates for routes of passage. Direct survival estimates overestimate the survival of fish that use that route of passage. Estimates of direct survival with balloon tags have been shown to be dependent upon release location, time of year, and method of release. Mechanical effects upon the fish further limit their ability to make inferences on populations of unmarked fish. The fishery managers have reviewed the historic research on the 1% operating criteria and developed recommendations for future research methods (Joint Technical Staff Memorandum dated May 29, 2003). The conclusions presented in Skalski et al. (2003) are questionable due to the inclusion of non-salmonids in the survival/efficiency correlation analysis and the lack of data beyond the 1% efficiency limits. However, as described in the Joint Memorandum, the existing research, including Skalski et al. (2003), suggest that survival is lower outside the 1% efficiency bounds as compared to within. The lack of statistical significance associated with this trend is likely due to having few observations beyond the efficiency limits.

SFTAJTS (State, Federal and Tribal Fishery Agencies Joint Technical Staff). 2003. Memo to NMFS, BPA and COE, May 29, 2003. Available at www.fpc.org

Skalski, J. et al. 2003 Summer Test Proposal – 1% McNary. Submitted to Corps of Engineers.